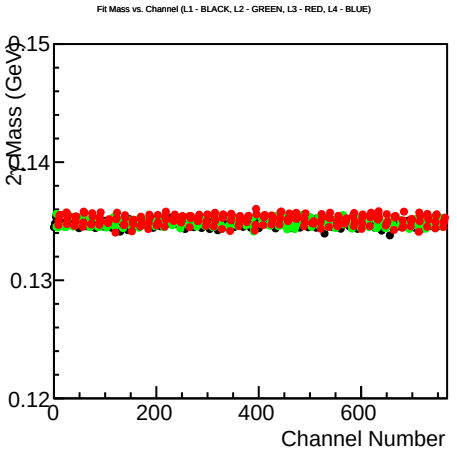
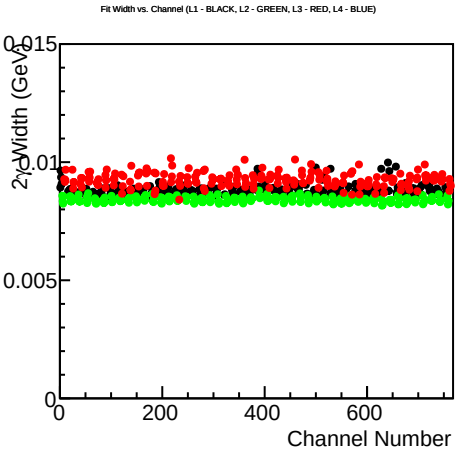
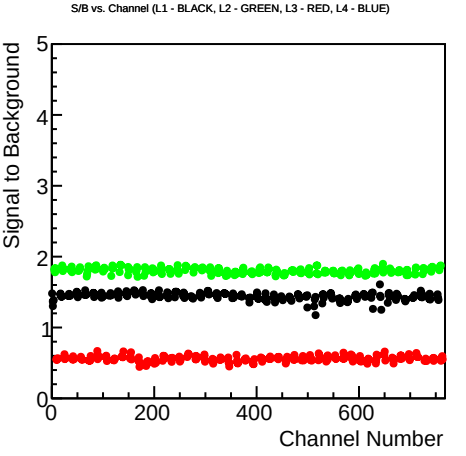
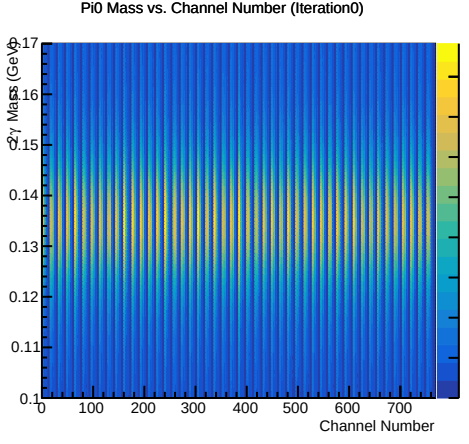
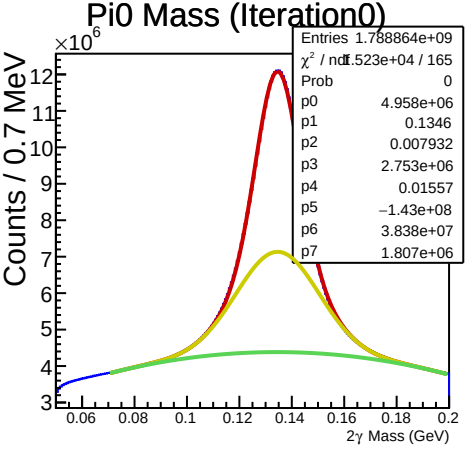
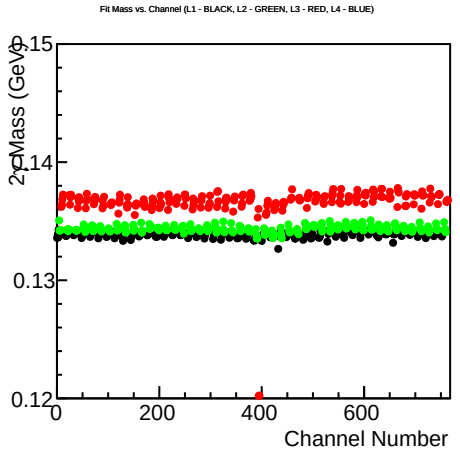

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

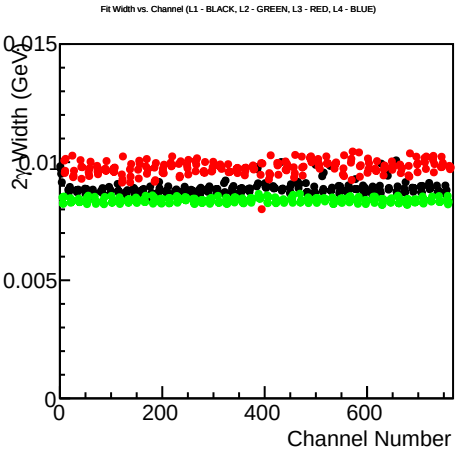

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

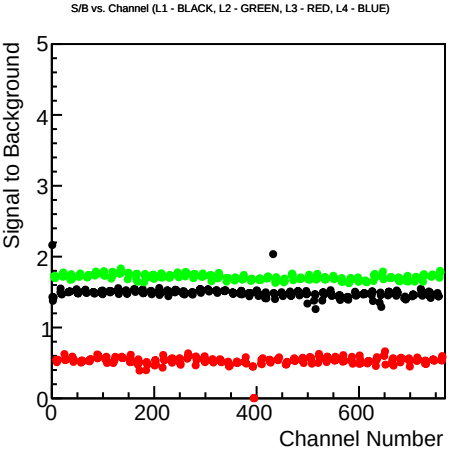

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

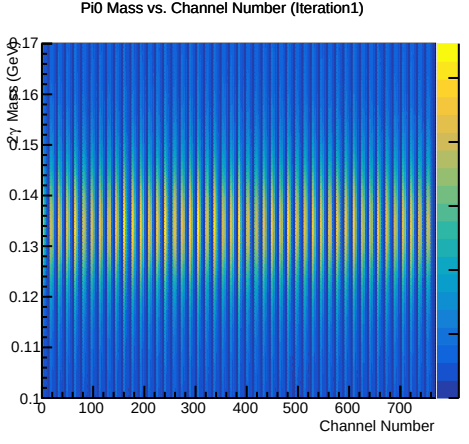

Pi0 Mass vs. Channel Number (Iteration0)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

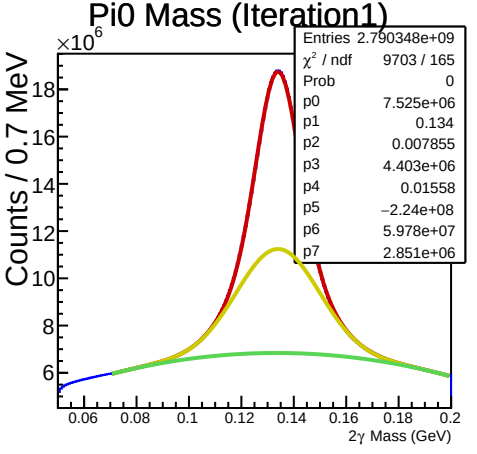

Pi0 Mass (Iteration0)
×10^6
Counts / 0.7 MeV
12
11
10
9
8
7
6
5
4
3
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 1.788864e+09
χ² / ndf 1.523e+04 / 165
Prob 0
p0 4.958e+06
p1 0.1346
p2 0.007932
p3 2.753e+06
p4 0.01557
p5 −1.43e+08
p6 3.838e+07
p7 1.807e+06

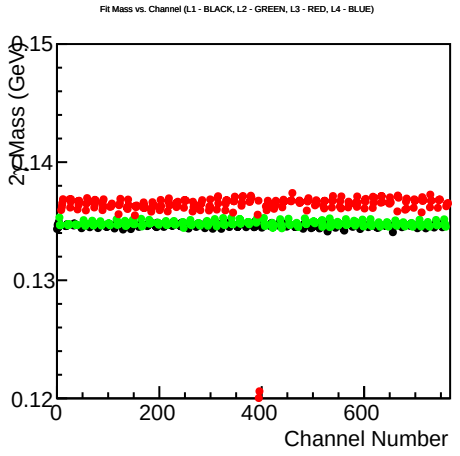

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

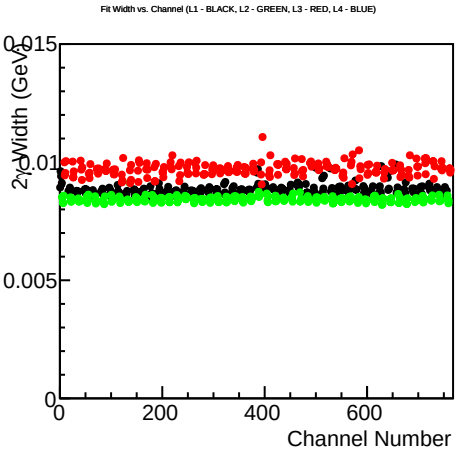

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

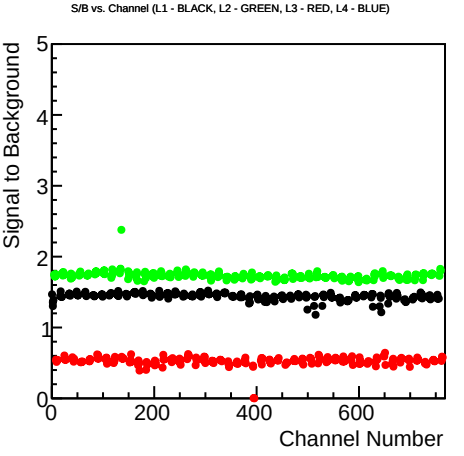

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

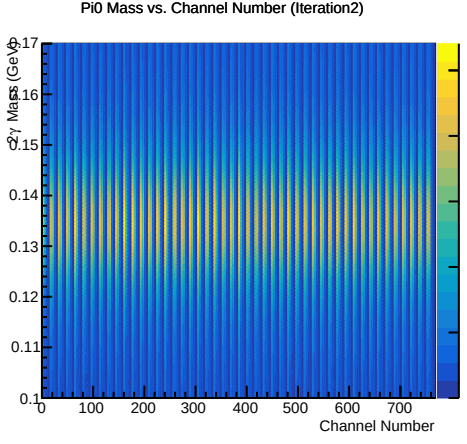

Pi0 Mass vs. Channel Number (Iteration1)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

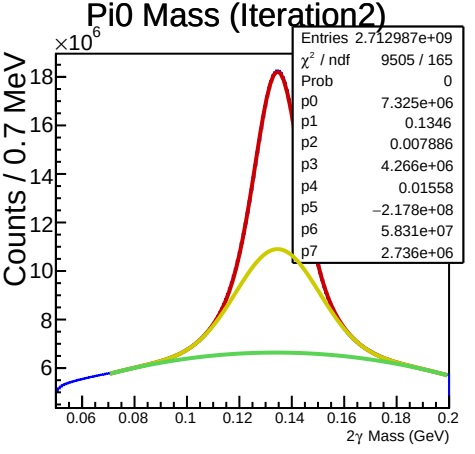

Pi0 Mass (Iteration1)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.790348e+09
χ² / ndf 9703 / 165
Prob 0
p0 7.525e+06
p1 0.134
p2 0.007855
p3 4.403e+06
p4 0.01558
p5 −2.24e+08
p6 5.978e+07
p7 2.851e+06

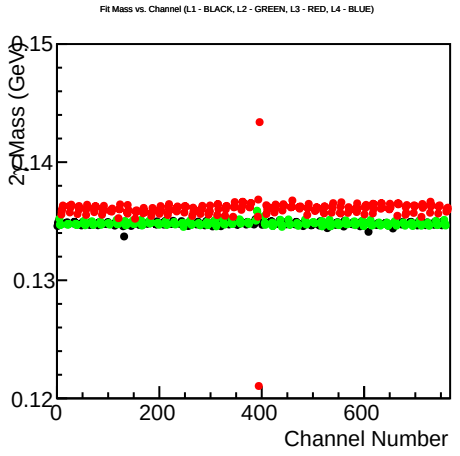

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

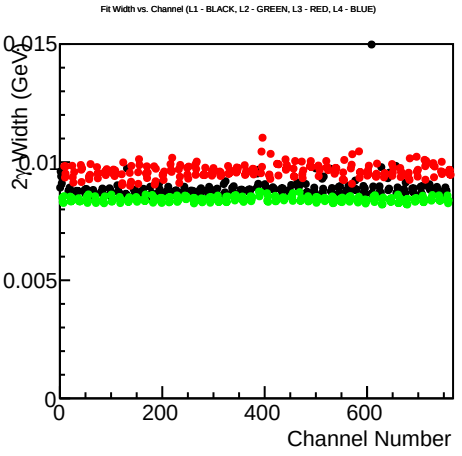

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

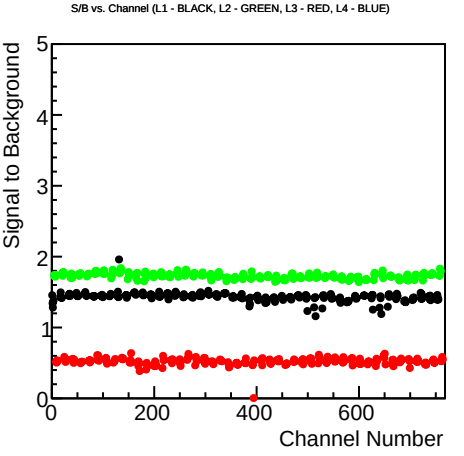

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

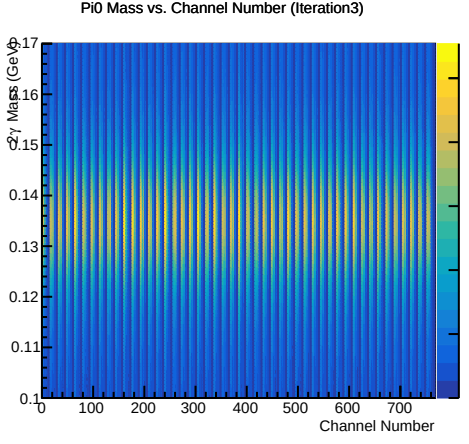

Pi0 Mass vs. Channel Number (Iteration2)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

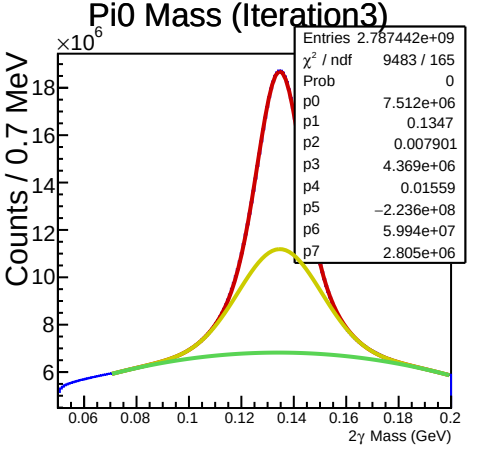

Pi0 Mass (Iteration2)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.712987e+09
χ² / ndf 9505 / 165
Prob 0
p0 7.325e+06
p1 0.1346
p2 0.007886
p3 4.266e+06
p4 0.01558
p5 −2.178e+08
p6 5.831e+07
p7 2.736e+06

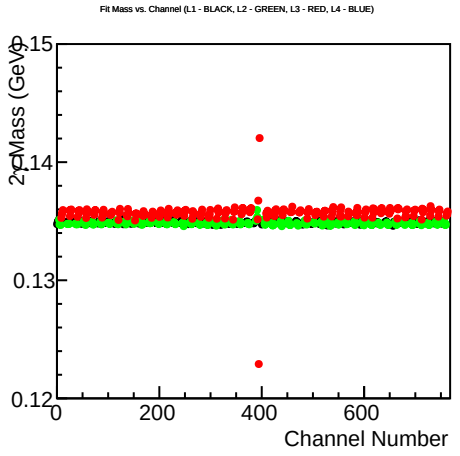

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

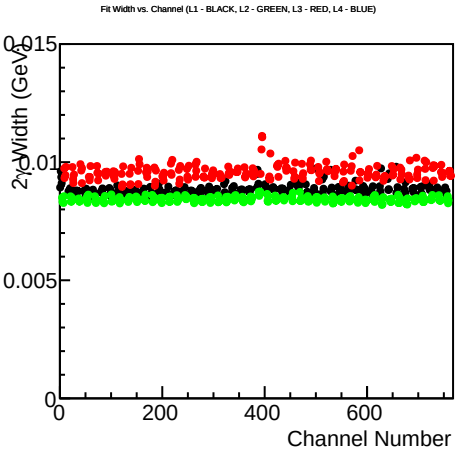

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

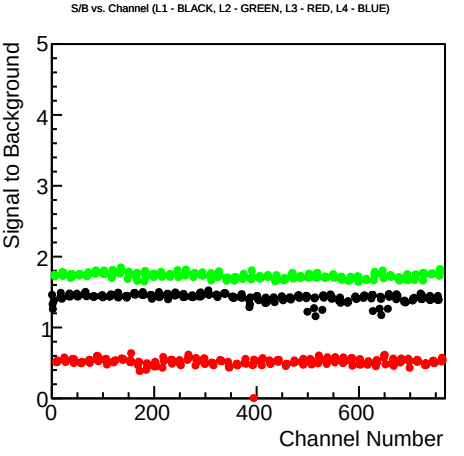

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

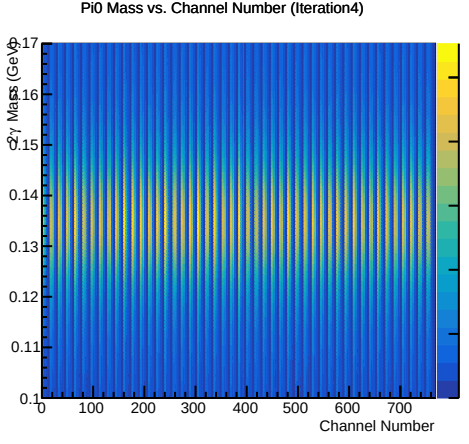

Pi0 Mass vs. Channel Number (Iteration3)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

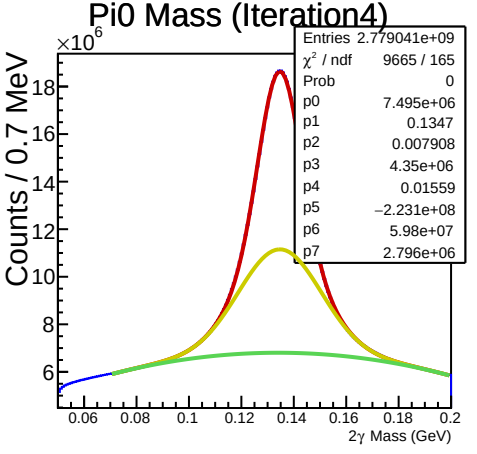

Pi0 Mass (Iteration3)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.787442e+09
χ² / ndf 9483 / 165
Prob 0
p0 7.512e+06
p1 0.1347
p2 0.007901
p3 4.369e+06
p4 0.01559
p5 −2.236e+08
p6 5.994e+07
p7 2.805e+06

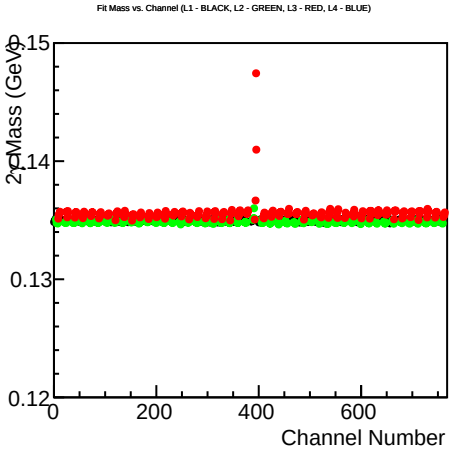

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

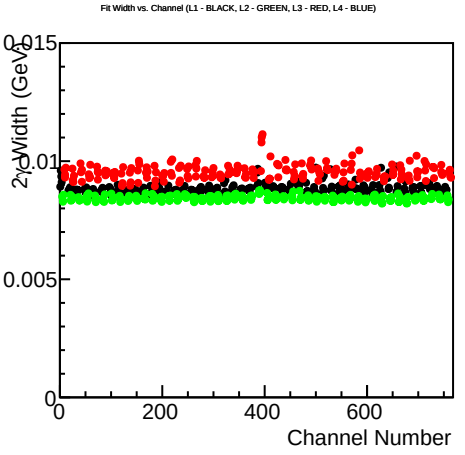

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

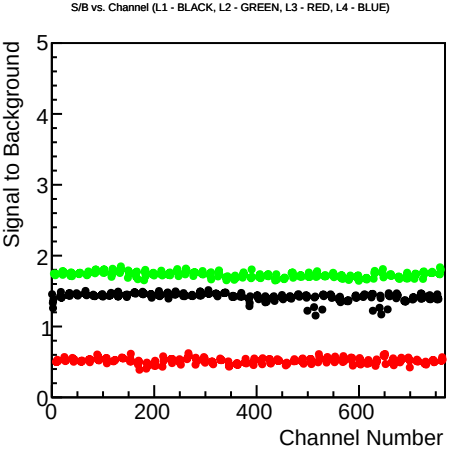

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

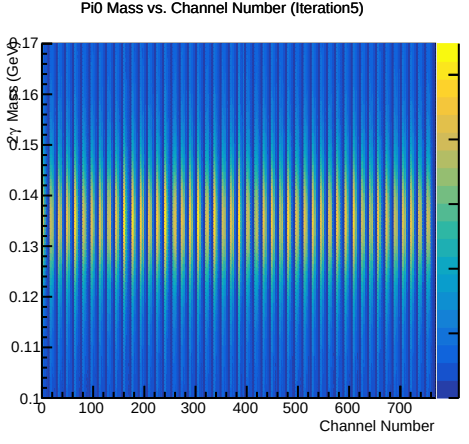

Pi0 Mass vs. Channel Number (Iteration4)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

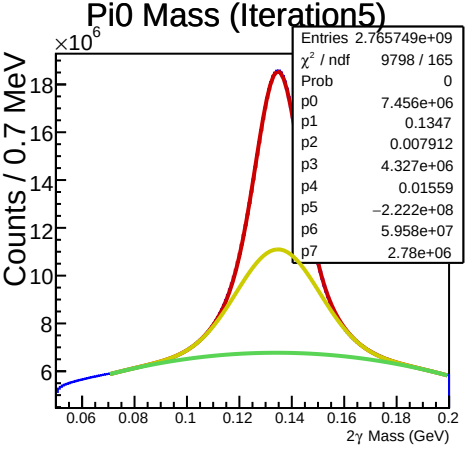

Pi0 Mass (Iteration4)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.779041e+09
χ² / ndf 9665 / 165
Prob 0
p0 7.495e+06
p1 0.1347
p2 0.007908
p3 4.35e+06
p4 0.01559
p5 −2.231e+08
p6 5.98e+07
p7 2.796e+06

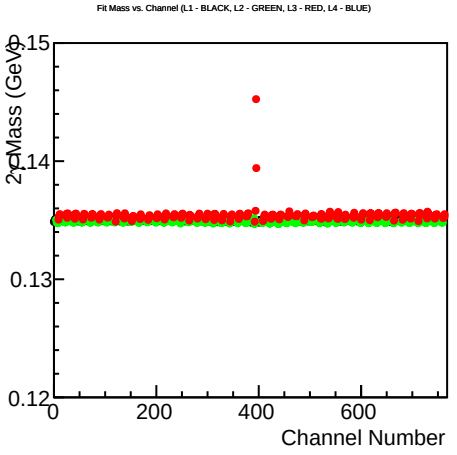

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

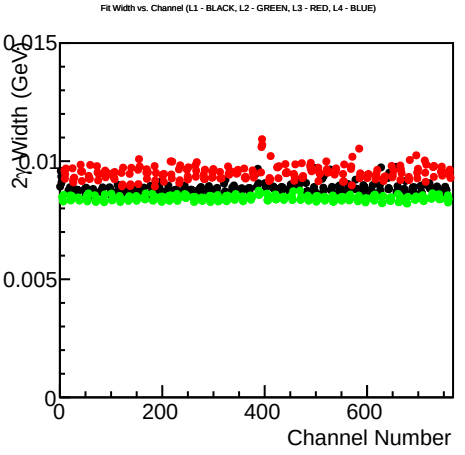

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

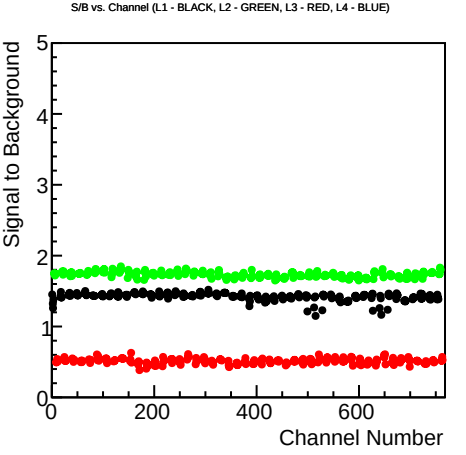

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

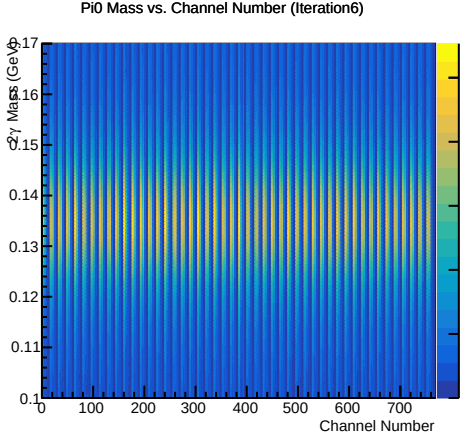

Pi0 Mass vs. Channel Number (Iteration5)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

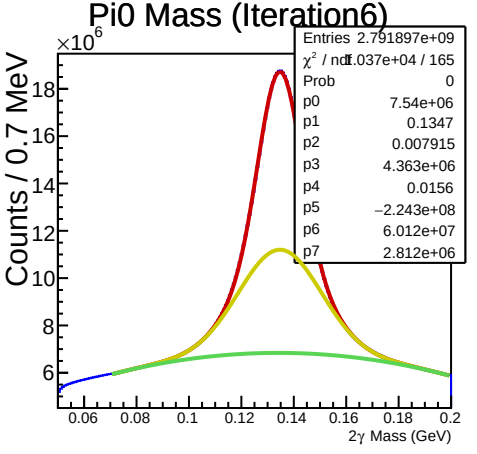

Pi0 Mass (Iteration5)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.765749e+09
χ² / ndf 9798 / 165
Prob 0
p0 7.456e+06
p1 0.1347
p2 0.007912
p3 4.327e+06
p4 0.01559
p5 −2.222e+08
p6 5.958e+07
p7 2.78e+06

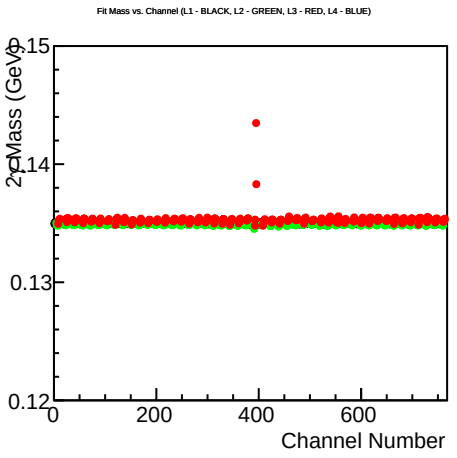

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

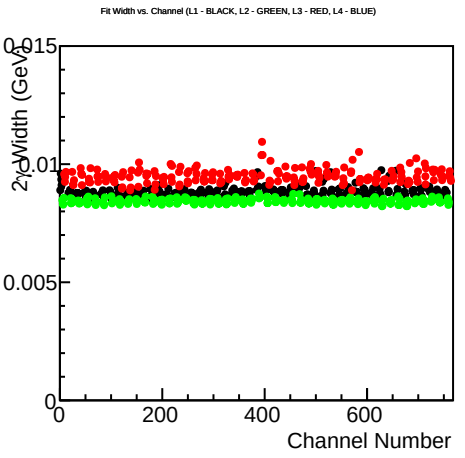

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

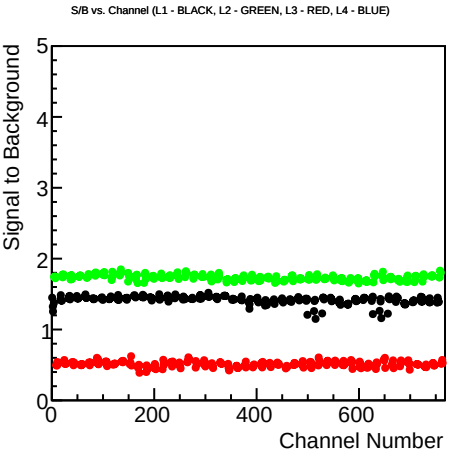

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

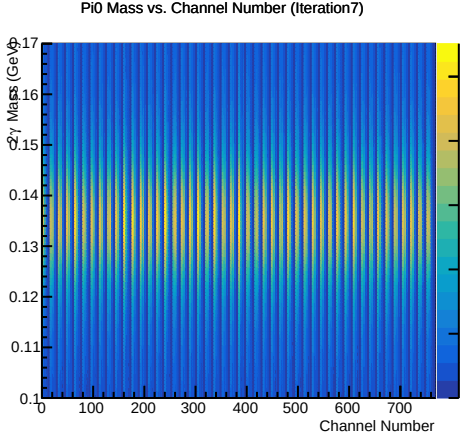

Pi0 Mass vs. Channel Number (Iteration6)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

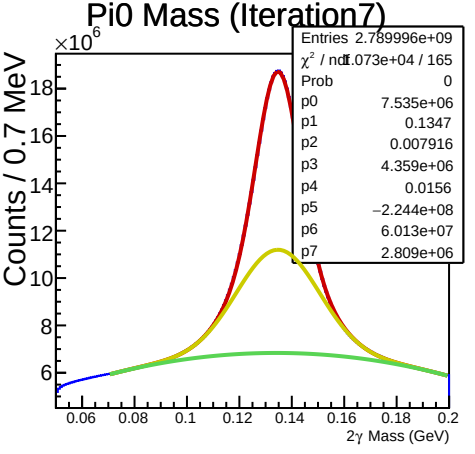

Pi0 Mass (Iteration6)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.791897e+09
χ² / ndf 1.037e+04 / 165
Prob 0
p0 7.54e+06
p1 0.1347
p2 0.007915
p3 4.363e+06
p4 0.0156
p5 −2.243e+08
p6 6.012e+07
p7 2.812e+06

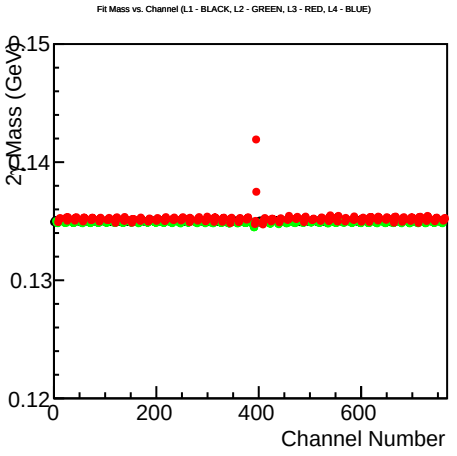

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

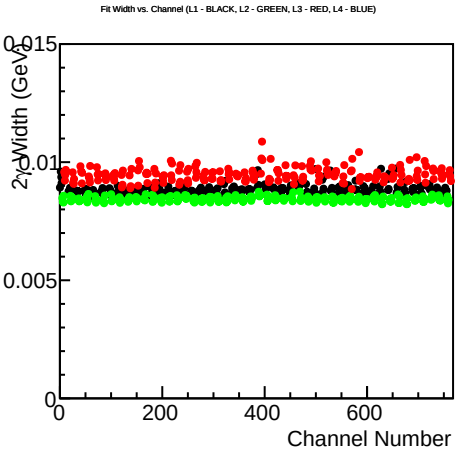

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

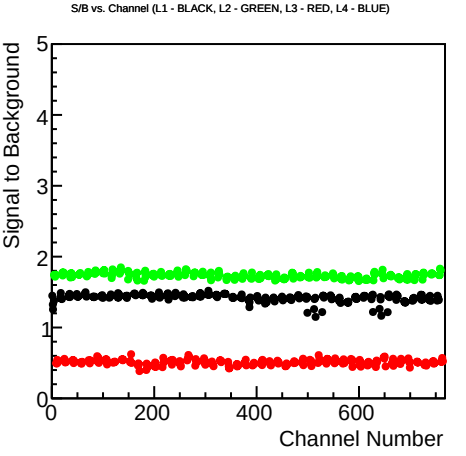

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

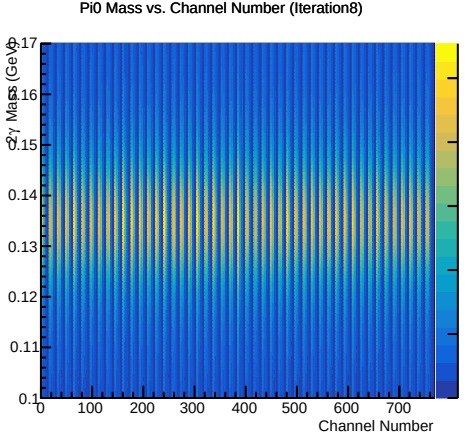

Pi0 Mass vs. Channel Number (Iteration7)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

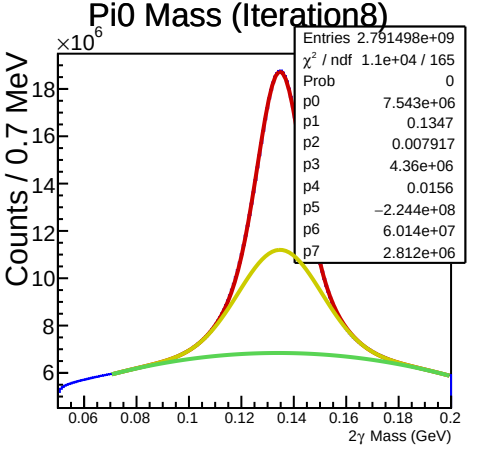

Pi0 Mass (Iteration7)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.789996e+09
χ² / ndf 1.073e+04 / 165
Prob 0
p0 7.535e+06
p1 0.1347
p2 0.007916
p3 4.359e+06
p4 0.0156
p5 −2.244e+08
p6 6.013e+07
p7 2.809e+06

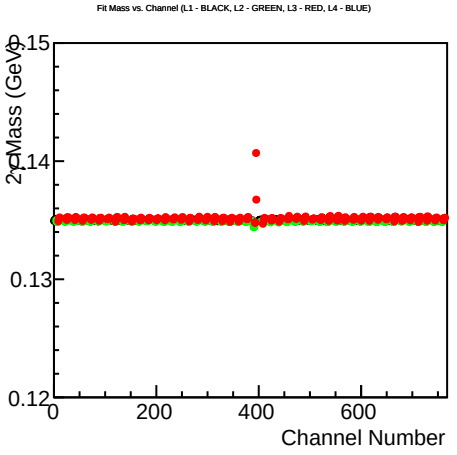

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

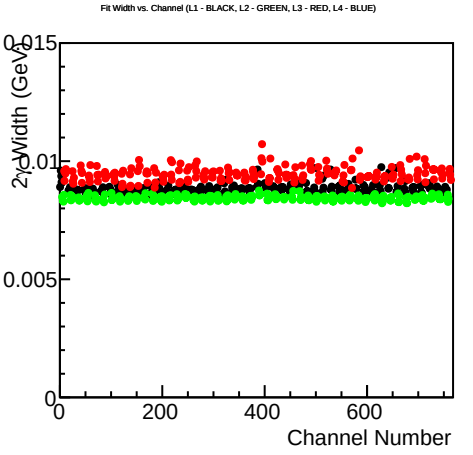

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

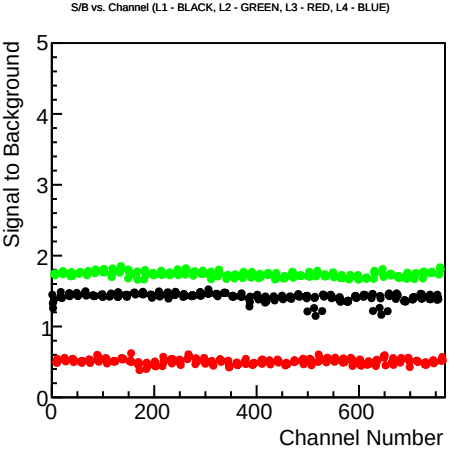

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

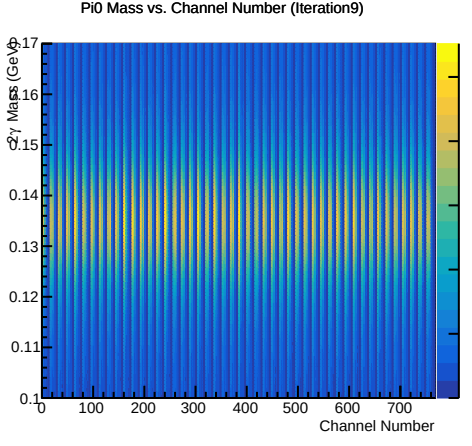

Pi0 Mass vs. Channel Number (Iteration8)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

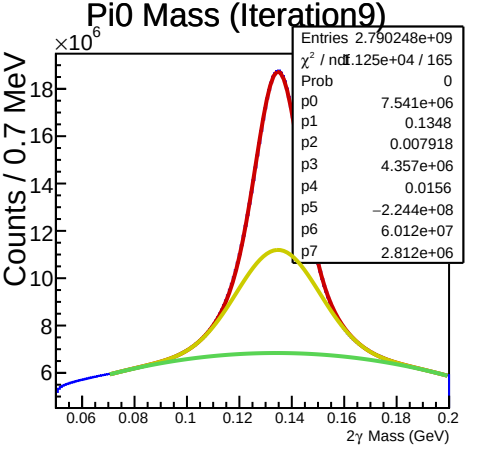

Pi0 Mass (Iteration8)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.791498e+09
χ² / ndf 1.1e+04 / 165
Prob 0
p0 7.543e+06
p1 0.1347
p2 0.007917
p3 4.36e+06
p4 0.0156
p5 −2.244e+08
p6 6.014e+07
p7 2.812e+06

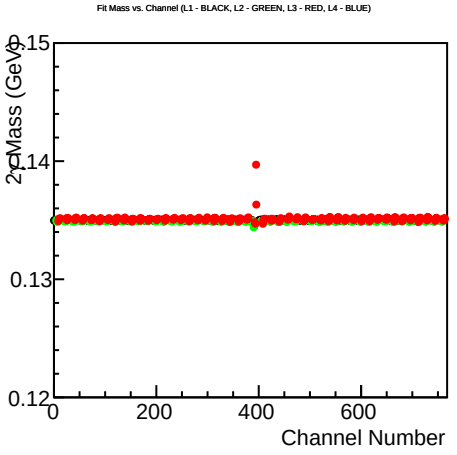

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

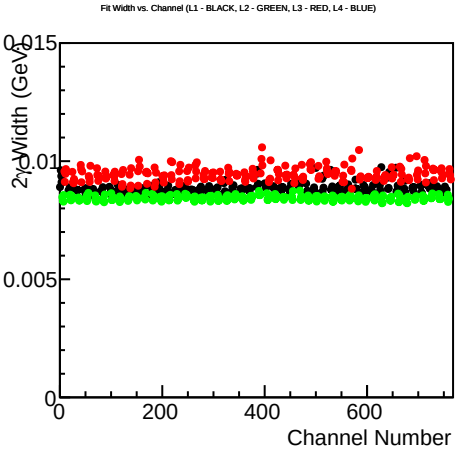

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

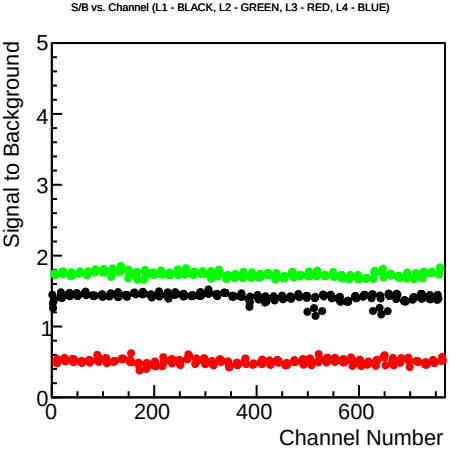

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

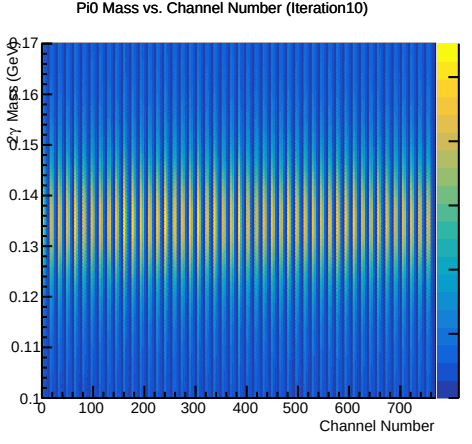

Pi0 Mass vs. Channel Number (Iteration9)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

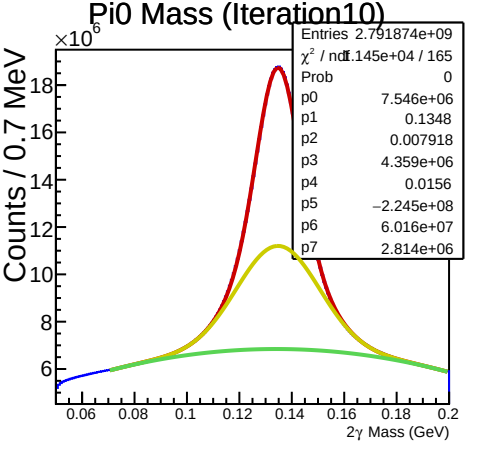

Pi0 Mass (Iteration9)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.790248e+09
χ² / ndf 1.125e+04 / 165
Prob 0
p0 7.541e+06
p1 0.1348
p2 0.007918
p3 4.357e+06
p4 0.0156
p5 −2.244e+08
p6 6.012e+07
p7 2.812e+06

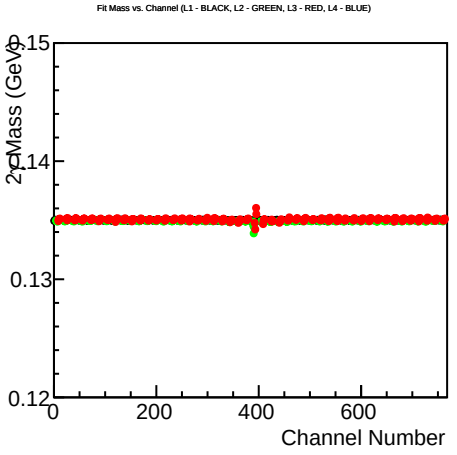

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

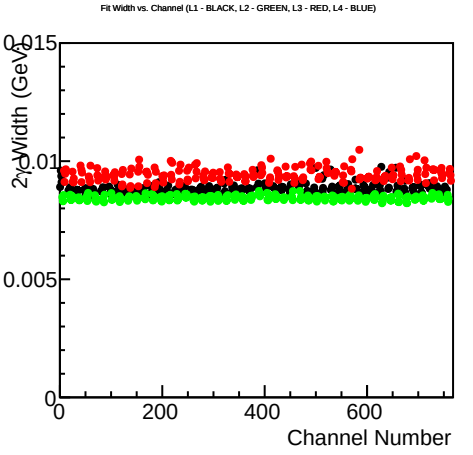

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

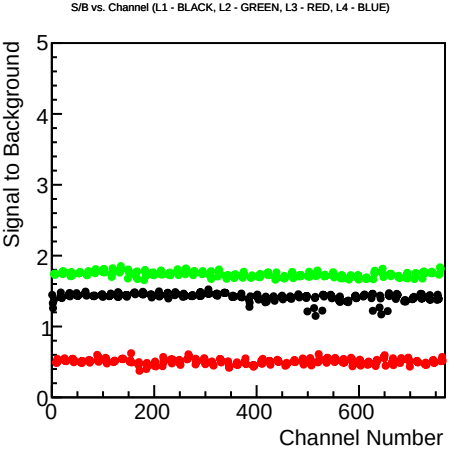

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

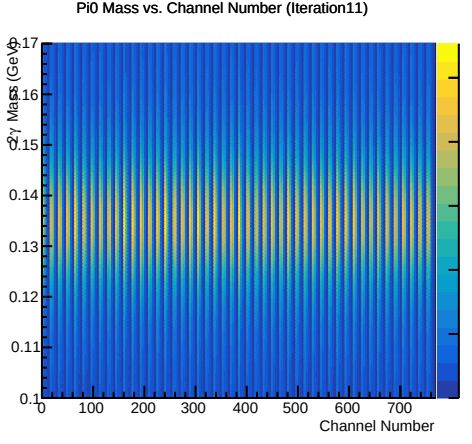

Pi0 Mass vs. Channel Number (Iteration10)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

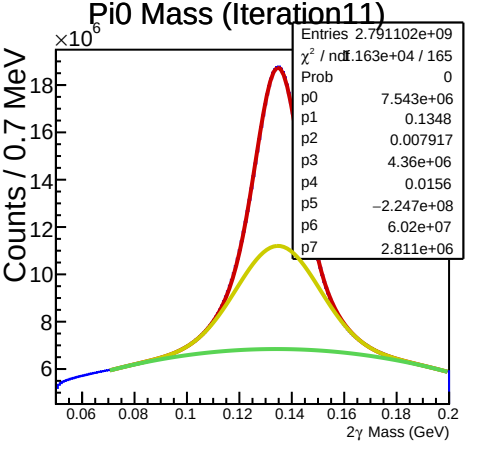

Pi0 Mass (Iteration10)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.791874e+09
χ² / ndf 1.145e+04 / 165
Prob 0
p0 7.546e+06
p1 0.1348
p2 0.007918
p3 4.359e+06
p4 0.0156
p5 −2.245e+08
p6 6.016e+07
p7 2.814e+06

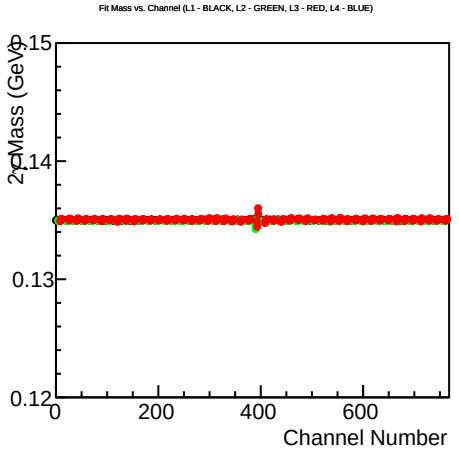

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

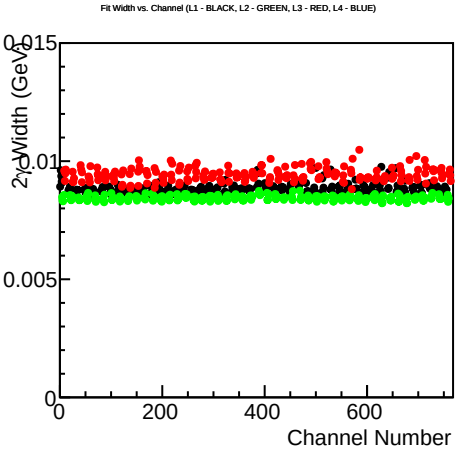

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

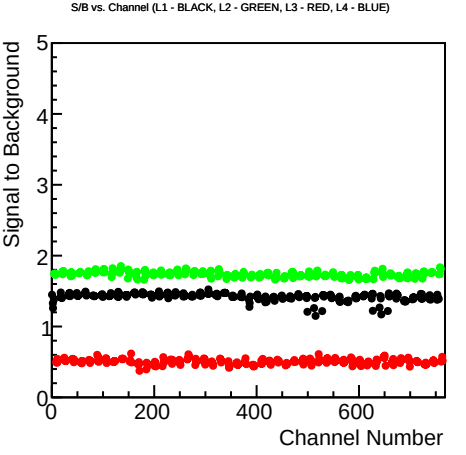

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

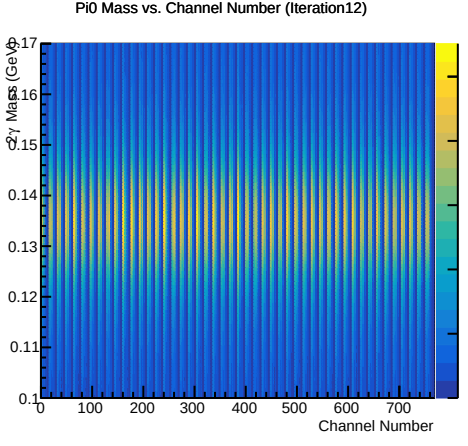

Pi0 Mass vs. Channel Number (Iteration11)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

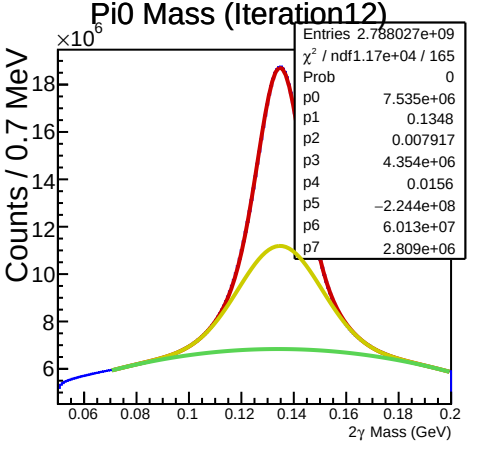

Pi0 Mass (Iteration11)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.791102e+09
χ² / ndf 1.163e+04 / 165
Prob 0
p0 7.543e+06
p1 0.1348
p2 0.007917
p3 4.36e+06
p4 0.0156
p5 −2.247e+08
p6 6.02e+07
p7 2.811e+06

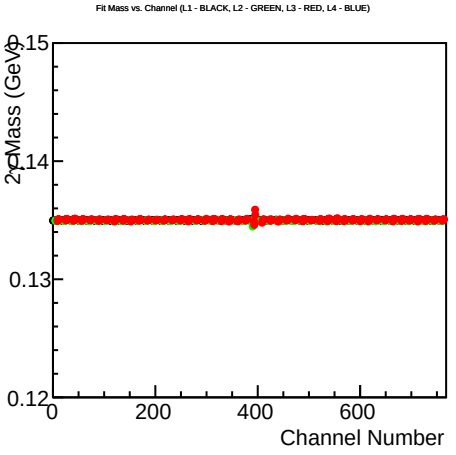

Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

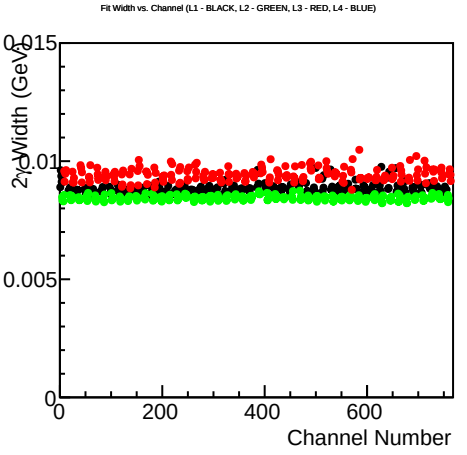

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number

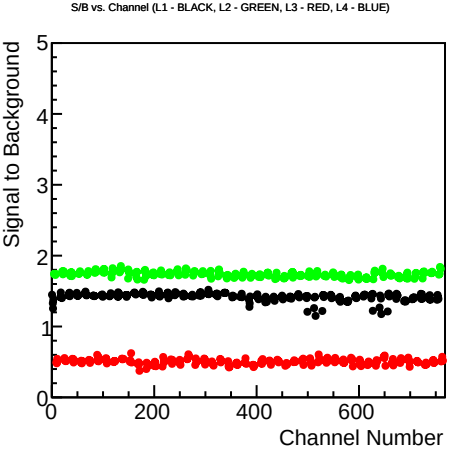

S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

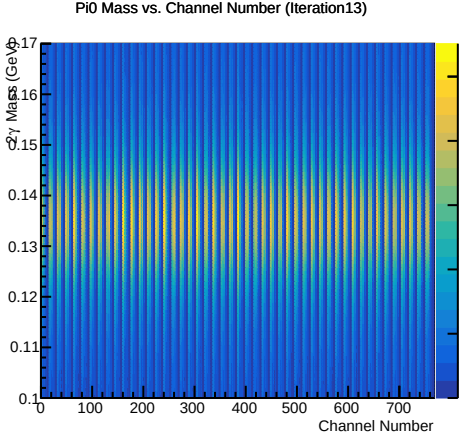

Pi0 Mass vs. Channel Number (Iteration12)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number

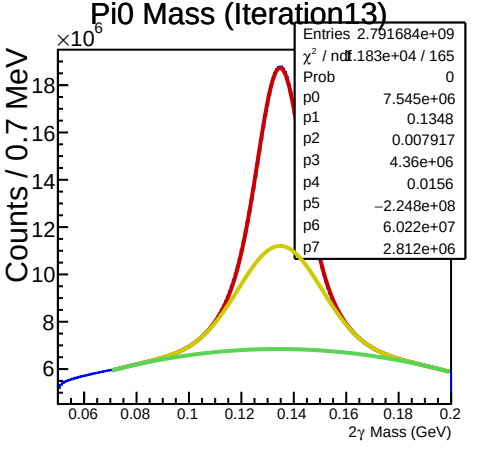

Pi0 Mass (Iteration12)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.788027e+09
χ² / ndf 1.17e+04 / 165
Prob 0
p0 7.535e+06
p1 0.1348
p2 0.007917
p3 4.354e+06
p4 0.0156
p5 −2.244e+08
p6 6.013e+07
p7 2.809e+06


Fit Mass vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Mass (GeV)
0.15
0.14
0.13
0.12
0
200
400
600
Channel Number

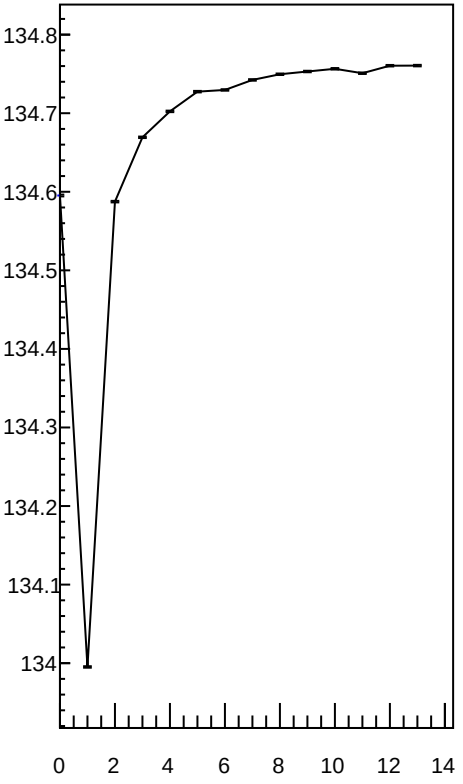

Fit Width vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
2γ Width (GeV)
0.015
0.01
0.005
0
200
400
600
Channel Number


S/B vs. Channel (L1 - BLACK, L2 - GREEN, L3 - RED, L4 - BLUE)
Signal to Background
5
4
3
2
1
0
200
400
600
Channel Number

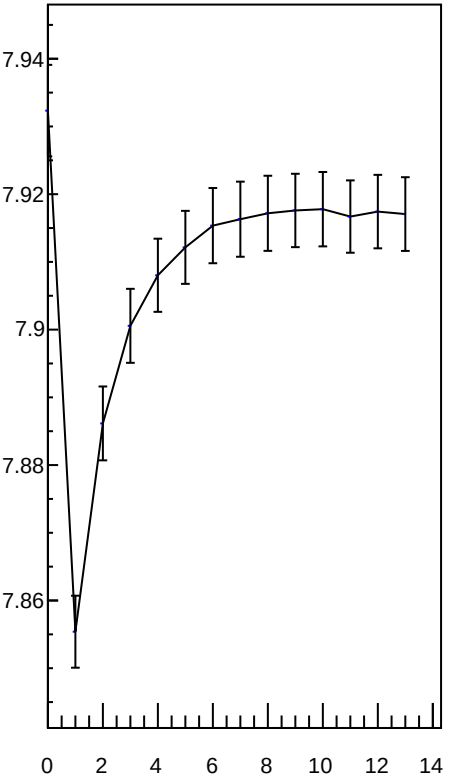

Pi0 Mass vs. Channel Number (Iteration13)
2γ Mass (GeV)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0
100
200
300
400
500
600
700
Channel Number


Pi0 Mass (Iteration13)
×10^6
Counts / 0.7 MeV
18
16
14
12
10
8
6
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
2γ Mass (GeV)
Entries 2.791684e+09
χ² / ndf 1.183e+04 / 165
Prob 0
p0 7.545e+06
p1 0.1348
p2 0.007917
p3 4.36e+06
p4 0.0156
p5 −2.248e+08
p6 6.022e+07
p7 2.812e+06

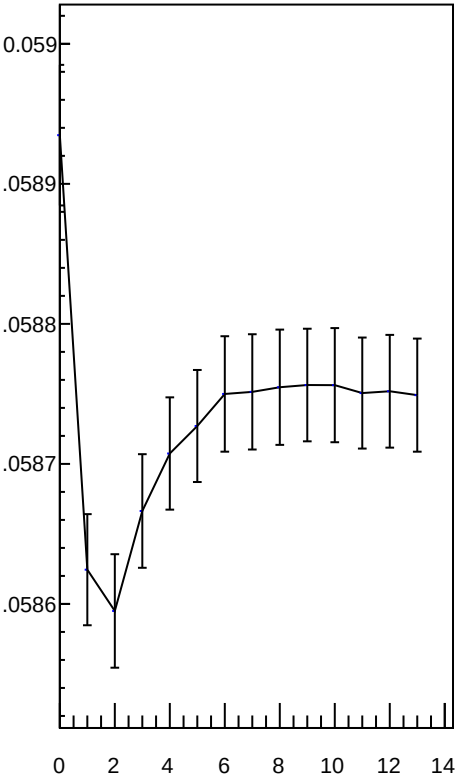
2γ fit mean vs. Iteration

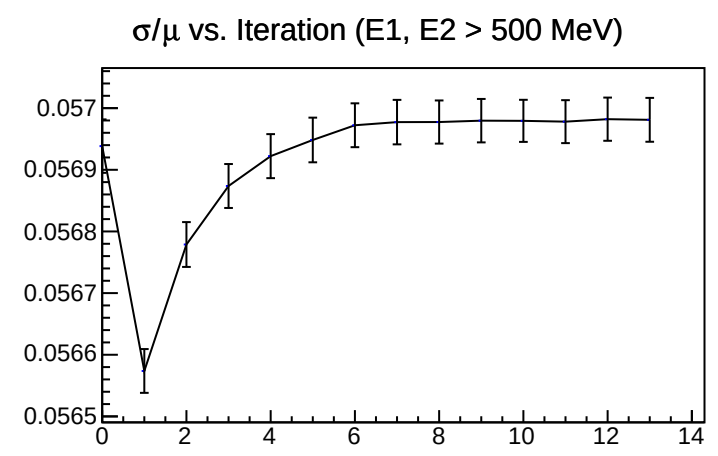


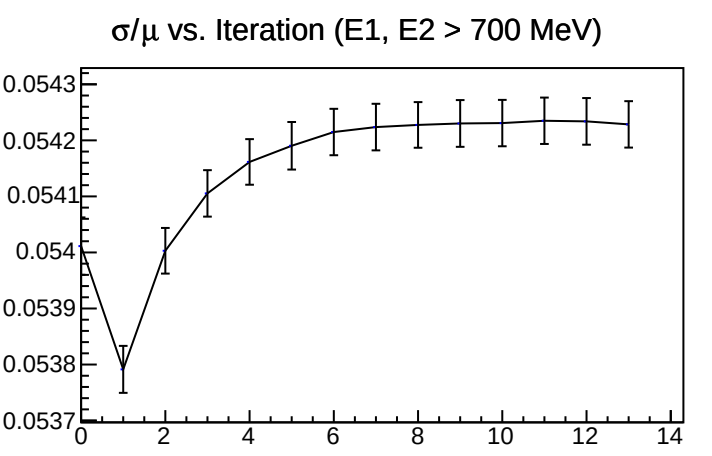
2γ fit sigma vs. Iteration

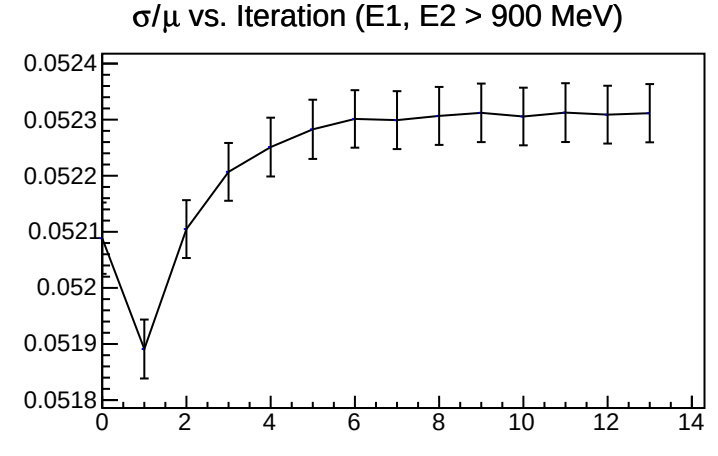


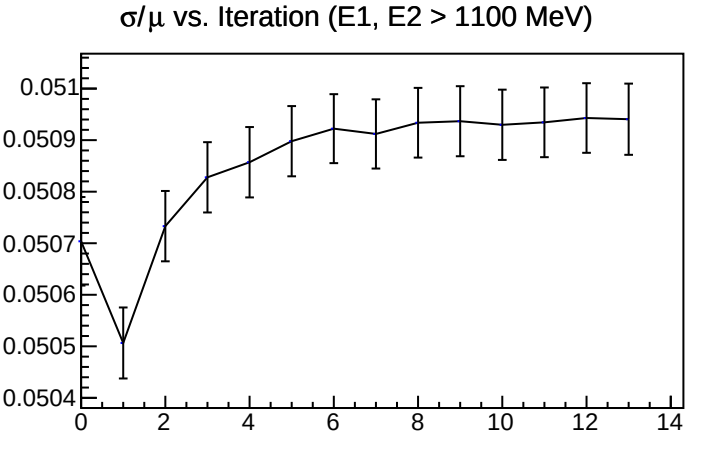
2γ fit sigma over mean vs. Iteration

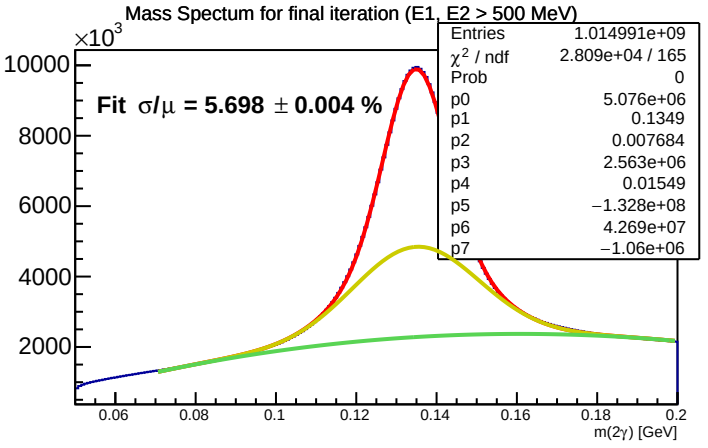


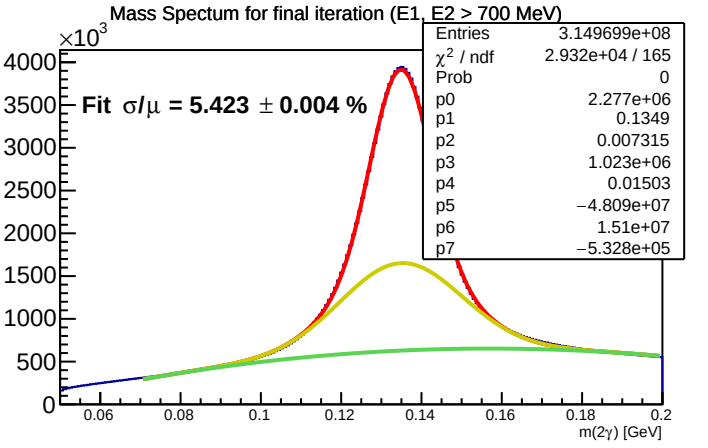

σ/μ vs. Iteration (E1, E2 > 500 MeV)
0.057
0.0569
0.0568
0.0567
0.0566
0.0565
0
2
4
6
8
10
12
14

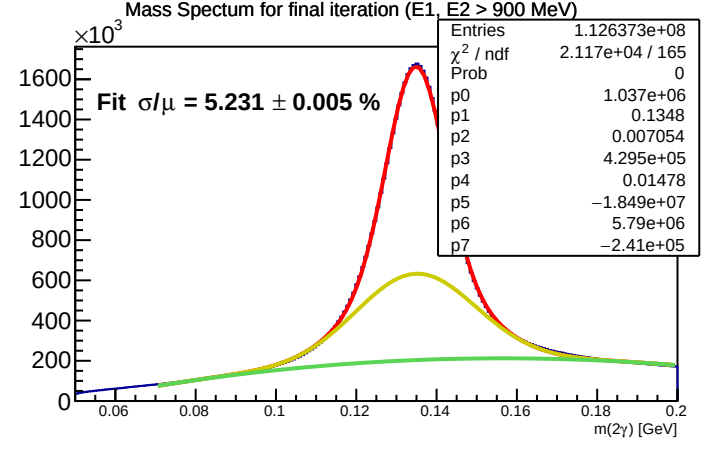

σ/μ vs. Iteration (E1, E2 > 700 MeV)
0.0543
0.0542
0.0541
0.054
0.0539
0.0538
0.0537
0
2
4
6
8
10
12
14

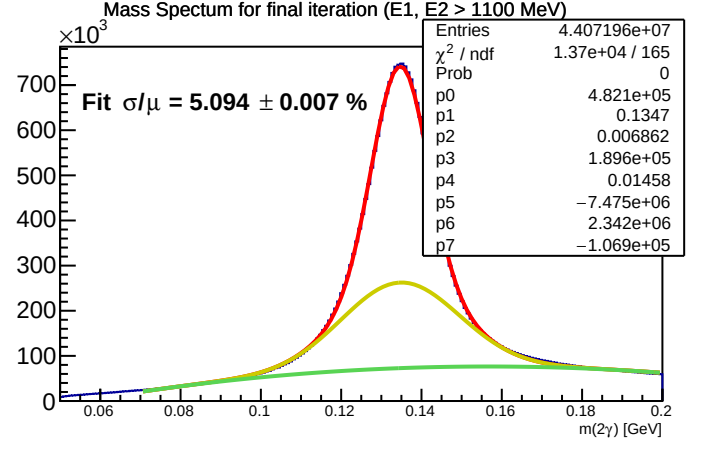

σ/μ vs. Iteration (E1, E2 > 900 MeV)
0.0524
0.0523
0.0522
0.0521
0.052
0.0519
0.0518
0
2
4
6
8
10
12
14

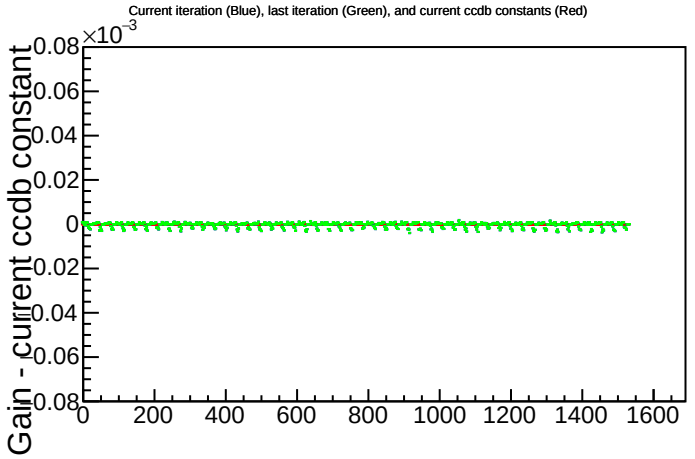

σ/μ vs. Iteration (E1, E2 > 1100 MeV)
0.051
0.0509
0.0508
0.0507
0.0506
0.0505
0.0504
0
2
4
6
8
10
12
14

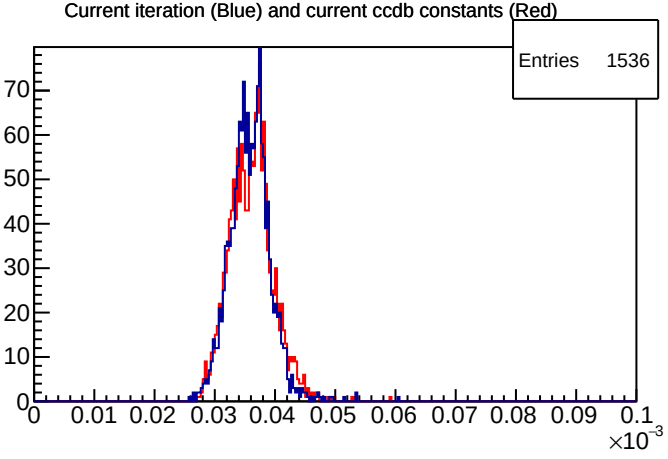

Mass Spectum for final iteration (E1, E2 > 500 MeV)
×10^3
Fit σ/μ = 5.698 ± 0.004 %
Entries 1.014991e+09
χ² / ndf 2.809e+04 / 165
Prob 0
p0 5.076e+06
p1 0.1349
p2 0.007684
p3 2.563e+06
p4 0.01549
p5 −1.328e+08
p6 4.269e+07
p7 −1.06e+06
m(2γ) [GeV]

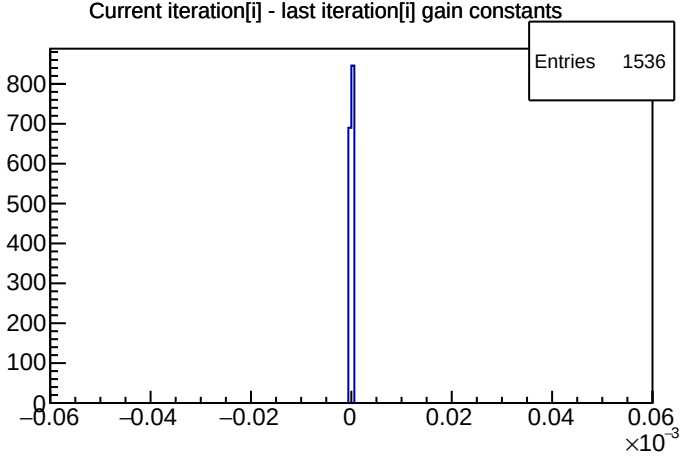

Mass Spectum for final iteration (E1, E2 > 700 MeV)
×10^3
Fit σ/μ = 5.423 ± 0.004 %
Entries 3.149699e+08
χ² / ndf 2.932e+04 / 165
Prob 0
p0 2.277e+06
p1 0.1349
p2 0.007315
p3 1.023e+06
p4 0.01503
p5 −4.809e+07
p6 1.51e+07
p7 −5.328e+05
m(2γ) [GeV]

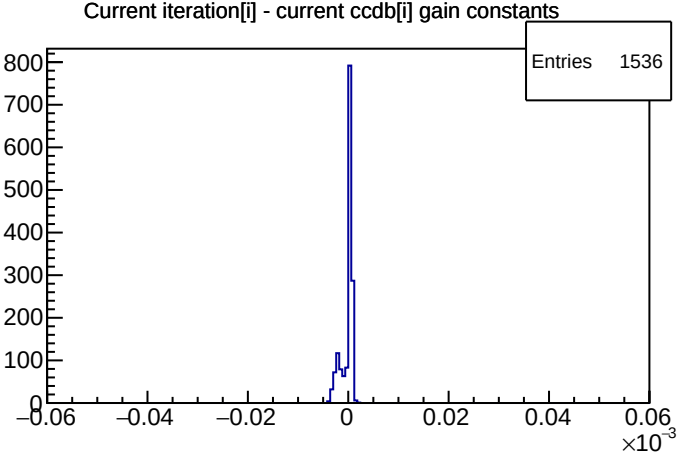

Mass Spectum for final iteration (E1, E2 > 900 MeV)
×10^3
Fit σ/μ = 5.231 ± 0.005 %
Entries 1.126373e+08
χ² / ndf 2.117e+04 / 165
Prob 0
p0 1.037e+06
p1 0.1348
p2 0.007054
p3 4.295e+05
p4 0.01478
p5 −1.849e+07
p6 5.79e+06
p7 −2.41e+05
m(2γ) [GeV]


Mass Spectum for final iteration (E1, E2 > 1100 MeV)
×10^3
Fit σ/μ = 5.094 ± 0.007 %
Entries 4.407196e+07
χ² / ndf 1.37e+04 / 165
Prob 0
p0 4.821e+05
p1 0.1347
p2 0.006862
p3 1.896e+05
p4 0.01458
p5 −7.475e+06
p6 2.342e+06
p7 −1.069e+05
m(2γ) [GeV]


Current iteration (Blue), last iteration (Green), and current ccdb constants (Red)
Gain - current ccdb constant
×10⁻³
0.08
0.06
0.04
0.02
0
0.02
0.04
0.06
0.08
0
200
400
600
800
1000
1200
1400
1600


Current iteration (Blue) and current ccdb constants (Red)
Entries 1536
70
60
50
40
30
20
10
0
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
×10⁻³


Current iteration[i] - last iteration[i] gain constants
Entries 1536
800
700
600
500
400
300
200
100
0
−0.06
−0.04
−0.02
0
0.02
0.04
0.06
×10⁻³


Current iteration[i] - current ccdb[i] gain constants
Entries 1536
800
700
600
500
400
300
200
100
0
−0.06
−0.04
−0.02
0
0.02
0.04
0.06
×10⁻³